DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially this invention relates to an offer medium at the image data source and the approach of performing trick mode playback, an image data sink and an approach, and a list, without changing the in-house data of a transport stream into the image data source and an approach, an image data sink and an approach, and a list about an offer medium.
[0002]
[Description of the Prior Art] Drawing 13 is the block diagram showing the configuration of an example of the stream-I/O equipment which processes the transport stream transmitted by digital broadcasting as the conventional image data source. This stream-I/O equipment 1 is connected with stream decode equipment 3 by the path cord 2. Moreover, stream decode equipment 3 is made as [output / the signal decoded to the monitor 4]. The playback directions section 5 is a remote controller etc., and when a user directs a playback mode to stream-I/O equipment 1, it is operated.
[0003] This stream-I/O equipment is equipment treating MPEG (Moving Picture Experts Group)2, and explains that DS below. Drawing 14 is drawing explaining the relation between a PES (Packetized Elementary Stream) packet and a transport (Transport) packet. As shown in this drawing, the PES packet which consists of a video data or audio data is divided into two or more blocks, TPH (Transport Packet Header) is added to each block, and the transport stream packet is constituted.
[0004] Here, the syntax of a transport packet is shown below.
<A table 1> No.of bits1 Transport_Packet() {— 2 sync_byte 83 transport_error_indicator 14 payload_unit_start_indicator 15 transport_priority 16 PID 137 transport_scrambling_control 28

adaptation_field_control 29continuity counter 410 if ()
[adaptation_field_control=='10' ||11] adaptation_field_control=='11' {12
adaptation_field()13 } 14 if (adaptation_field_control=='01'||15
adaptation_field_control=='11') {16 for (i=0; i<N; i++) {17 data_byte 818
19 }} 20 } [0005] sync_byte of the 2nd line is the field which shows a 8-bit synchronous cutting tool. transport_error_indicator of the 3rd line is a 1-bit flag, for example, when set as 1, it shows that at least 1-bit bit error which cannot be corrected exists in the transport stream. It is shown that the pay load of this transport stream packet starts payload_unit_start_indicator of the 4th line from the 1st byte of a PES packet when it is a 1-bit flag and is 1, and when it is 0, it is shown that the PES packet has not begun by this transport packet.
[0006] transport_priority of the 5th line is a 1-bit identifier, and if set as 1, the packet concerned shows that a priority is higher than other packets which have not set this bit with the same PID to 1. PID of the 6th line is the 13-bit field, and shows the class of data stored into a packet pay load. transport_scrambling_control of the 7th line is the 2-bit field, and shows the scramble mode of the pay load of a transport stream packet.
[0007] adaptation_field_control of the 8th line is the 2-bit field, and shows that at least one side of the Adaptation field and a pay load comes to this transport stream packet header. continuity_counter of the 9th line is the 4-bit field which increases for each [have the same PID] transport stream packet of every. The 10th line thru/or the 16th line show the content of the Adaptation field. data_byte of the 17th line is the cutting tool who continues from PES packet data, or a cutting tool whom the private data which is not in this structure follows.
[0008] Next, the syntax of a PES packet is explained. The syntax shown below is syntax of the PES packet in the Normal playback.
<A table 2> No.of bits1 PES_packet_Example_for_NORMAL_PLAYBACK()
{2 packet_start_code_prefix 243 stream_id 84 PES_packet_length 165'10'
26 PES_scrambling_control 27 PES_priority 18 data_alignment_indicator
19 copyright 110 original_or_copy 111 PTS_DTS_flags 112 ESCR_flag 113
ES_rate_flag 114 DSM_trick_mode_flag 115 additional_copy_info_flag 116
PES_CRC_flag 117 PES_extension_flag 118 PES_header_data_length 819
PTS 4020 DTS 4021 for (I=0;i<N2; i++) {22 PES_packet_data_byte 823 }
24 } [0009] packet_start_code_prefix of the 2nd line is a 24-bit sign, and constitutes the packet initiation code which identifies initiation of a packet. stream_id of the 3rd line specifies the class and number of an elementary stream. PES_packet_length of the 4th line is the 16-bit field, and has specified the byte count in the PES packet following the last bit

of this field. PES_scrambling_control of the 6th line is the 2-bit field, and shows the scrambling mode of the pay load of a PES packet.
[0010] PES_priority of the 7th line is the 1-bit field, and shows the priority of the pay load of this PES packet. data_alignment_indicator of the 8th line is a 1-bit flag, and shows [whether the sync word of an image start code or voice continues, and] whether it defines or not. copyright of the 9th line shows [whether the raw material of the pay load of the associated PES packet is protected under copyright, and] whether it defines or not.
[0011] It is shown whether original_or_copy of the 10th line has the original content of the pay load of this PES packet or it is a copy. PTS_DTS_flags of the 11th line is a 2-bit flag, and shows whether the PTS (Presentation Time Stamp) field and the DTS (Decoding Time Stamp) field exist in a PES packet header. ESCR_flag of the 12th line is a 1-bit flag, and shows whether ESCR bases and the extended field exist in a PES packet header. ES_rate_flag of the 13th line is a 1-bit flag, and shows whether ES_rate exists in a PES packet header.
[0012] DSM_trick_mode_flag of the 14th line is a 1-bit flag, and shows whether the trick_mode_Control field exists. additional_copy_info_flag of the 15th line is a 1-bit flag, and shows whether additional_copy_info exists or not. PES_CRC_flag of the 16th line is a 1-bit flag, and shows whether the CRC field exists in a PES packet. PES_extension_flag of the 17th line is a 1-bit flag, and shows whether the extended field exists in a PES packet header.
[0013] PES_header_data_length of the 18th line is the 8-bit field, and has specified all the byte counts of the option field contained in a PES packet header, and a stuffing cutting tool. PTS of the 19th line is the abbreviation for Presentation_Time_Stamp, and is the 33-bit field. DTS of the 20th line is the abbreviation for Decoding_Time_Stamp, and is the 33-bit field. PES_packet_data_byte of the 22nd line is cutting tool data with which the elementary stream which Stream_id or PID of a packet shows continued.
[0014] In this table 2, since DSM_trick_mode_flag of the 14th line is the Normal playback, it is set as 0. However, in the trick mode playback instead of the Normal playback, the value of this flag is set to 1. Here, trick mode playbacks are slow motion, a rapid traverse, etc. When DSM_trick_mode_flag of the 14th line is 1, the line of trick_mode_control_parameters() is inserted after [of a table 2] the 20th line. The method of playbacks other than the Normal playback is prescribed by this trick_mode_control_parameters().
[0015] The syntax of trick_mode_control_parameters() is shown below.

<A table 3> No.of bits1 trick_mode_control_parameters(){2 trick_mode_control 33 if (trick_mode_control == fast_forward) { 4 field_id 25 intra_slice_refresh 16 frequency_truncation 27 } 8 else if [(trick_mode_control == slow_motion) 9 rep_cntrl 510 } 11 else if (trick_mode_control ==freeze_frame) {12 field_id 213 reserved 314 } 15 else if (trick_mode_control == fast_reverse) {16 field_id 217 intra_slice_refresh 118 frequency_truncation 219 } 20 else if (trick_mode_control == slow_reverse) {21 rep_cntrl 522 } 23 else24 reserved 525 } [0016] trick_mode_control of the 2nd line is the field of a triplet and shows the class in trick mode. Namely, when the value of this field is "000", slow reverse (slow_reverse) is shown [at a rapid traverse (fast_forward) and the time of "001"], respectively at a reverse rapid traverse (fast_reverse) and the time of "100" at a frieze (freeze_frame) and the time of "011" at slow motion (slow_motion) and the time of "010." Moreover, "101" thru/or "111" are reserved for the future (reservation).

[0017] When the value of trick_mode_control of the 2nd line is "000", in order to realize fast_forward, in field_id of the 4th line, it is specified first which field is displayed. That is, when this field is "00", it is shown that only the top field is displayed, in the case of "01", it is shown that only the bottom product field is displayed, in the case of "10", it is shown that a perfect image frame is displayed, and "11" is reserved for the future.

[0018] When the bit of intra_slice_refresh of the 5th line is set as 1, the macro block may be missing and a decoder shows that replacement can perform the missing macro block with the macro block of the location where the image frame decoded before it is the same. Moreover, frequency_truncation of the 6th line is the field which shows that the set of the restricted multiplier is included.

[0019] When the value of trick_mode_control of the 2nd line is "001", in order to realize slow_motion, in rep_cntrl of the 9th line, the count as which the same picture is displayed repeatedly is defined.

[0020] When the value of trick_mode_control of the 2nd line is "010", in order to realize freeze_frame, the field to display is specified in field_id of the 12th line. The convention with same field_id of the 12th line and field_id of the 4th line mentioned above is used.

[0021] When the value of trick_mode_control of the 2nd line is "011", in order to realize fast_reverse, in field_id of the 16th line, the field first displayed by the 4th line and the same convention as field_id of the 12th line is specified. The convention as intra_slice_refresh of the 5th line with same intra_slice_refresh of the 17th line is carried out, and the

convention as frequency_truncation of the 6th line also with same frequency_truncation of the 18th line is carried out.
[0022] When the value of trick_mode_control of the 2nd line is "100", in order to realize slow_reverse, in rep_control of the 21st line, the count as which the same picture is displayed repeatedly is specified like rep_cntrl of the 9th line.
[0023] Stream-I/O equipment 1 treats data with DS which was mentioned above. The transport stream transmitted by digital broadcasting is recorded on the Records Department 10 of stream-I/O equipment 1. Reading appearance of the transport stream currently recorded on the Records Department 10 is carried out by the read-out section 11, and it is outputted to a switch 12. In case the read-out section 11 reads a transport stream from the Records Department 10, it reads by the playback directions section 5 according to the playback mode which the user directed.
[0024] In the Normal playback of directions by the playback directions section 5, a switch 12 is changed to Contact E side, and outputs the output from the read-out section 11 to the contact E side of a switch 19. When directions by the playback directions section 5 are the Normal playback, a switch 19 is also changed to Contact E side, and outputs the output from a switch 12 to stream decode equipment 3.
[0025] When the playback directions section 5 directs slow motion other than the Normal playback etc., a switch 12 and a switch 19 are changed to Contact F side, respectively. By changing a switch 12 to Contact F side, the transport stream by which reading appearance was carried out in the read-out section 11 is inputted into the stream Banking Inspection Department 13.
[0026] It reads, and the stream Banking Inspection Department 13 outputs the signal it is directed that reads inadequate information to the read-out section 11, when information required for having been inputted through the switch 12 to inspect and decode the stream from the section 11, for example, sequence header, is inadequate. Moreover, the stream Banking Inspection Department 13 discards the stream, when the inputted stream cannot decode only by it. The stream outputted from the stream Banking Inspection Department 13 is inputted into the PES extract section 14.
[0027] From the transport stream inputted into the PES extract section 14, a PES packet is extracted and it is outputted to the video stream extract section 15. The video stream extract section 15 extracts a video stream packet from the inputted PES packet, and outputs it to the PES packet-ized section 16. The signal outputted from the mode information

setting-out section 17 is also inputted into the PES packet-ized section 16.
[0028] The mode information setting-out section 17 encodes, and outputs the information about the playback mode directed in the playback directions section 5 to the PES packet-ized section 16. That is, from the playback directions section 5, since the count (rep_cntrl) reproduced repeatedly is also instructed to be directions of the field (field_id) to reproduce while a playback mode (trick_mode_control) is directed, such directed information is encoded and it outputs to the PES packet-ized section 16.
[0029] The PES packet-ized section 16 multiplexes the mode information outputted from the mode information setting-out section 17 to the video stream outputted from the video stream extract section 15, and outputs it to it at the transport packet-ized section 18. Moreover, in case the PES packet-ized section 16 outputs a PES packet, it changes DSM_trick_mode_flag of the stream into 1 from 0, and outputs it to the transport packet-ized section 18.
[0030] The transport packet-ized section 18 re-multiplexes the PES packet outputted from the PES packet-ized section 16 to a transport stream, and outputs it to stream decode equipment 3 through the switch 19 changed to Contact F side. Stream decode equipment 3 decodes the transport stream outputted from stream-I/O equipment 1, and outputs it to a monitor 4. A monitor 4 reproduces an image based on the inputted data. This playback image turns into a trick mode playback image.
[0031]
[Problem(s) to be Solved by the Invention] The stream-I/O equipment 1 mentioned above needs the PES extract section 14, the video stream extract section 15, the PES packet-ized section 16, and the transport packet-ized section 18, in order to create the transport stream for carrying out trick playback. That is, in order to rewrite the in-house data of a transport stream packet, the transport stream had to be separated once, and rewriting and insertion of predetermined information had to be carried out, and it had to multiplex to the transport stream again.
[0032] This invention is made in view of such a situation, and trick mode playback is realized, without rewriting the in-house data of a transport stream packet by writing the information which realizes trick mode playback in the CIP header of IEEE1394, or generating a transport stream packet including new trick mode playback information, or inserting information.
[0033]
[Means for Solving the Problem] The image data source according to

claim 1 is characterized by to have a supply means to supply image data, a directions means to direct the playback mode of image data, a setting-out means to set up the information on the playback mode directed by the directions means, and an output means to relate the information set up by the setting-out means with the image data supplied by the supply means, and to output it.

[0034] The image data transmitting approach according to claim 4 is characterized by including the supply step which supplies image data, the directions step which directs the playback mode of image data, the setting-out step which sets up the information on the playback mode directed at the directions step, and the output step which relates the information set up at the setting-out step with the image data supplied at the supply step, and outputs it.

[0035] An offer medium according to claim 5 carries out providing a program possible in reading as the description in the computer which makes the image data source perform processing containing the supply step which supplies image data, the directions step which direct the playback mode of image data, the setting-out step which set up the information on the playback mode directed at a directions step, and the output step which relate the information set up at a setting-out step with the image data supplied at a supply step, and output it.

[0036] An image data sink according to claim 6 is characterized by having a receiving means to receive a packet, an extract means to extract predetermined data from the packet received by the receiving means, and a regeneration means to regenerate according to the data extracted by the extract means.

[0037] An image data sink according to claim 9 is characterized by including the receiving step which receives a packet, the extract step which extracts predetermined data from the packet received at the receiving step, and the regeneration step which regenerates according to the data extracted at the extract step.

[0038] An offer medium according to claim 10 is characterized by to offer the program which the computer which makes an image data sink perform processing containing the receiving step which receives a packet, the extract step which extracts predetermined data from the packet received at the receiving step, and the regeneration step which regenerates according to the data extracted at the extract step can read.

[0039] In the image data source according to claim 1, the image data source according to claim 4, and an offer medium according to claim 5, the information on a playback mode is set up, and it is related with the

image data to which the set-up information was supplied, and is outputted.
[0040] In an image data sink according to claim 6, the image data receiving approach according to claim 9, and an offer medium according to claim 10, predetermined data are extracted from the received packet and regeneration is performed according to the extracted data.
[0041]
[Embodiment of the Invention] Although the gestalt of operation of this invention is explained below, it is as follows, when the gestalt (however, an example) of operation [/ in the parenthesis after each means] is added and the description of this invention is described, in order to clarify response relation between each means of invention given in a claim, and the gestalt of the following operations. However, of course, this publication does not mean limiting to what indicated each means. Moreover, the same sign is given to the conventional case and the corresponding part, and the explanation is omitted suitably.
[0042] A supply means by which the image data source according to claim 1 supplies image data (for example, Records Department 10 of drawing 4), A directions means to direct the playback mode of image data (for example, playback directions section 5 of drawing 4), A setting-out means to set up the information on the playback mode directed by the directions means (for example, step S8 of drawing 6), It is characterized by having an output means (for example, step S9 of drawing 6) to relate the information set up by the setting-out means with the image data supplied by the supply means, and to output it.
[0043] An image data sink according to claim 6 is characterized by having a receiving means (for example, step S21 of drawing 8) to receive a packet, an extract means (for example, step S22 of drawing 8) to extract predetermined data from the packet received by the receiving means, and a regeneration means (for example, step S27 of drawing 8) to regenerate according to the data extracted by the extract means.
[0044] Drawing 1 is drawing showing the configuration of the image processing system which applied this invention. The stream outputted from stream-I/O equipment 21 is inputted into stream decode equipment 22. Stream decode equipment 22 decodes the inputted stream, and outputs it to a monitor 4. A monitor 4 reproduces an image based on the inputted data. The stream recording device 23 is made as [record / suitably / the stream outputted from stream-I/O equipment 21]. These equipments of each other are connected by the path cord 2. Moreover, in this system, the data compressed by MPEG (Moving Picture Experts Group)2 shall be treated.

[0045] When the path cord 2 of the image processing system mentioned above is the high-speed serial bus of IEEE1394, the data dealt with are explained. With the IEEE1394 MPEG TS (Transport Stream) protocol, as shown in drawing 2 (A), 4 bytes of source packet header (Source packet header) is added to 188 bytes of transport packet (Transport Packet), and it is specified that the packet which has the source packet (source packet) of a 192-byte unit called is constituted.
[0046] The source packet header consists of a 7 bits reserve (reserved) field and a 25-bit time stump (Time_stamp) for restoring the sending-out timing to the application of each TS packet by the receiver side, as shown in drawing 2 (B). The time stump consists of a 13 bits cycle count (Cycle_count) and 12-bit cycle offset (Cycle_offset).
[0047] Drawing 3 (A) shows the format of the isochronous packet (Isochronous packet) of IEEE1394 specification. 2 mulberry dreadlocks (2x8 bytes) of the head of a packet are the headers of an isochronous packet. data_length showing the size of the data into which this header goes after 2 mulberry dreadlocks of this header, tag showing whether the CIP header is added into the data field (data_field), channel showing the channel of a transmitting side, tcode (transaction code) that shows the code of processing, and sy which shows a synchro NAIJIESHON code are arranged. And header_CRC which is the detection sign of the error in a header is arranged at the last.
[0048] SID (Source node ID) a CIP header indicates the node ID of a transmitting agency to be, and DBS (Data Block Size in quadlets) showing the block size of data are arranged. FN (Fraction Number) is arranged at the degree. This expresses the number of the blocks with which one source packet is divided. The next QPC (Quadlet Padding Count) shows the number of the added dummy mulberry dreadlocks. The next SPH (SourcePacket Header flag) is a flag showing whether the source packet has the source packet header.
[0049] The next Res (reserved) is suspended for the future. DBC (Data Block Continuity counter) expresses the value of the counter of a data block with which it continues for detecting loss of a data block. In the following line, it has FMT (Format ID) which shows the class of data format, and FDF (Format Dependent Field) on which the value according to Format is recorded.
[0050] The source packet drawing 2 explained data field to be by the way is inserted. And data CRC is the detection sign of the error in data field.
[0051] Drawing 3 (B) is drawing showing the detail of the FDF field of drawing 3 (A). As for the head bit of a FDF field, the time shift flag (TSF)

is set up. This TSF is a flag which shows whether the time shift of the stream currently transmitted is carried out. 23 bits other than the head bit of the FDF field are a reserve field for a future extension. In this invention, the data for realizing trick mode to this reserve field are inserted. This trick mode is playbacks, such as rapid traverses other than the Normal playback (for example, slow motion).

[0052] In addition, since this invention is defined as the FDF field describing the information on trick mode although all the values of the FDF field may be set to 0 when fast_forward is directed as trick mode, although mentioned later for details, the definition as a reserve field serves as an invalid. Therefore, when all the values of the FDF field are set to 0, fast_forward in trick mode will be shown in a meaning.

[0053] Moreover, when the FMT field was conventionally set as the value which shows a transport stream, the FDF field was defined, the value of the FDF field was made into the reserve field, but in this invention, when the FMT field is set as the value which shows a transport stream, the semantics is extended and it is shown that the information about a playback mode is described by 16 bits following TSF of the FDF field.

[0054] Drawing 4 is the block diagram showing the example of a configuration of the stream-I/O equipment 21 treating the packet of IEEE1394 specification mentioned above. The Records Department 10 consists of digital video cassettes by which the transport stream transmitted by digital broadcasting is recorded. The read-out section 11 reads the transport stream currently recorded on the Records Department 10. This read-out is performed according to the playback mode directed by the playback directions section 5. The playback directions section 5 will transmit the data in the selected mode to the read-out section 11 of stream-I/O equipment 21, if it consists of remote controllers etc. and a desired playback mode is chosen by actuation of a user.

[0055] The signal outputted from the playback directions section 5 is inputted also into a switch 12. A switch 12 is changed to Contact E side, when the inputted data is directing the Normal playback, and when playbacks other than the Normal playback (trick mode) are directed, it is changed to Contact F side. The stream outputted from the read-out section 11 when the switch 12 was changed to Contact E side is made as [input / into the stream Banking Inspection Department 31], when it is inputted into the 1394 packet-ized section 32 and changes to Contact F side.

[0056] As trick mode, when for example, rapid-traverse playback is

directed, the read-out section 11 carries out the continuation search of the I picture from the Records Department 10, and reads a stream. Under the present circumstances, reading appearance of the stream in which sequence header specified by MPEG 2 does not exist is carried out, and the case where it is outputted to the stream Banking Inspection Department 31 can be considered. In such a case, since it corresponds, the read-out section 11 reads the information on sequence header from the storage section 10, and outputs it to the mode information setting-out section 33, and the mode information setting-out section 33 memorizes the information. And the stream Banking Inspection Department 31 directs to output the information on sequence header memorized to the 1394 packet-ized section 32 in the mode information setting-out section 33, when it is judged that sequence header does not exist in the inputted stream.

[0057] In addition, since it is assumed that reading appearance of the stream in which sequence header does not exist is carried out when trick mode is directed as mentioned above, when trick mode is directed, it is not based on directions of the stream Banking Inspection Department 31, but you may make it the mode information setting-out section 33 output sequence header memorized to the 1394 packet-ized section 32.

[0058] Moreover, when it is judged that sequence header does not exist in the stream which the stream Banking Inspection Department 31 inspected, read-out of sequence header is directed in the read-out section 11, and you may make it the read-out section 11 output read sequence header to the mode information setting-out section 33. When it does in this way, it is not necessary to memorize sequence header in the mode information setting-out section 33.

[0059] In case the mode information setting-out section 33 outputs the information on sequence header to the 1394 packet-ized section 32, it describes the information to Video_sequence_header_descriptor. Furthermore, this descriptor is made into the structure of Selection_Information_Table defined by DVB (Digital Video Broadcasting), is formed into a transport packet, and is outputted to the 1394 packet-ized section 32.

[0060] Here, video_sequence_header_descriptor is explained. video_sequence_header_descriptor is a descriptor which gives the information on sequence_header multiplexed in the stream. The syntax of video_sequence_header_descriptor is shown below.

<A table 4> No.of bits1 video_sequence_header_descriptor()2 {3 descriptor_tag 84 descriptor_length 85 video_coding_mode 46

profile_and_level_indication 87 chroma_format 28 horizontal_size_value 129 vertical_size_value 1210 frame_rate_code 411 bit_rate_value 1812 vbv_buffer_size_value 1013 reserved 214] [0061] descriptor_tag of the 3rd line is the 8-bit field, and an intact value is set up by the MPEG 2 system and DVB. The value of descriptor_length of the 4th line is set as 9. video_coding_mode of the 5th line is the 4-bit field showing the coding method of video_elementary_stream. It is shown that it is the stream of undefined when the value of this field is "0000", it is shown that it is the stream of MPEG1 when it is "0001", and when it is "0010", it is shown that it is the stream of MPEG 2. "0011" thru/or "1111" are reseved(ed).

[0062] profile_and_level_indication of the 6th line is the field which specifies a 8-bit profile and level, and the same convention as profile_and_level_indication defined by ISO/IEC 13818-2 is applied. chroma_format of the 7th line is the 2-bit field, and shows a color difference format. horizontal_size_value of the 8th line shows a configuration, now the width of face of a part which gets down and displays this horizontal_size per pixel of each brightness component from 12 bits of low order of horizontal_size.
[0063] vertical_size_value of the 9th line consists of 12 bits of low order of vertical_size, and this vertical_size shows the height of the part displayed per line of each brightness component of the frame in a line. frame_rate_code of the 10th line is the 4-bit field, and it is used in order to define frame_rate_value. bit_rate_value of the 11th line consists of 18 bits of low order of bit_rate, and is the field where data are described for the limit to the amount of generating bits. vbv_buffer_size_value of the 12th line consists of 10 bits of low order of vbv_buffer_size decided in the size of the virtual buffer for the amount control of generating signs. It is shown that reserved of the 13th line is secured for the future.
[0064] When return and a switch 12 are changed to explanation of the stream-I/O equipment 21 of drawing 4 at Contact F side, the stream outputted from the read-out section 11 is outputted to the stream detecting element 31. The stream Banking Inspection Department 31 discards the inputted stream, when the inputted stream inspects whether it can decode only by it and judges [that it cannot decode and] it. On the contrary, the stream Banking Inspection Department 31 outputs the stream to the 1394 packet-ized section 32, when it judges [that the inputted stream can be decoded and].
[0065] For example, there is no I picture whose stream read from the read-out section 11 is a reference picture, and when it is B picture and P picture by which reading appearance was carried out, it is judged

[that it cannot decode and] and is discarded.
[0066] The information about the playback mode directed by the playback directions section 5 other than the information about sequence header from the mode information setting-out section 33 is also inputted into the 1394 packet-ized section 32. The 1394 packet-ized section 32 inserts and outputs the stream and information that it was inputted to an isochronous packet.
[0067] Here, slow motion is mentioned as an example as the Normal playback and trick mode, and the picture reproduced is explained. Drawing 5 (A) is drawing explaining the Normal playback, and drawing 5 (B) is drawing explaining slow motion. The upper case of drawing 5 (A) and drawing 5 (B) shows the stream by which reading appearance is carried out from the Records Department 10. The upper case of drawing 5 (A) and the middle of drawing 5 (B) show the stream outputted from stream-I/O equipment 21. The lower berth of drawing 5 (A) and drawing 5 (B) shows the picture reproduced with a monitor 4. Moreover, the number by which P carries out P picture, B is carrying out the table of the B picture, respectively, and I was attached after each alphabet in I picture is a number which usually shows the sequence of the playback at the time of playback (Normal playback).
[0068] As shown in drawing 5 (A), in the Normal playback, the sequence of the stream (picture) reproduced from the Records Department 10 and the picture outputted from stream-I/O equipment 21 is the same. In the Normal playback, in a monitor 4, the picture of such an array is reproduced, as shown in the lower berth of drawing 5 (A).
[0069] If slow motion is directed by the playback directions section 5 when the stream reproduced from the Records Department 10 is the same as the upper case of drawing 5 (A), as shown in the upper case of drawing 5 (B), as the output from stream-I/O equipment 21 was shown in the middle of drawing 5 (B), the packet of TMCP (Trick Mode Control Parameter) will be inserted before the picture slow motion was instructed to be.
[0070] Although drawing 5 (B) showed the example which inserted TMCP in the form of a packet before the picture, with the stream-I/O equipment 21 treating the packet of IEEE1394 specification shown in drawing 4 , TMCP is written in the predetermined field of the packet of a picture so that it may mention later. This TMCP is the data in which it is shown that it is in trick mode, and data which are made to indicate by the repeat or (rep_cntrl) contain the same picture how many times in being slow motion.
[0071] In a monitor 4, the picture of an array as shown in the middle of

drawing 5 (B) is reproduced, as shown in the lower berth of drawing 5 (B). That is, after I0 picture is reproduced, B1 picture is reproduced only M times directed by TMCP, and similarly, B-2 picture and P3 picture are also reproduced only M times, and it returns after B4 picture to the Normal playback. That is, TMCP4 contains the data of returning to the Normal playback, in this case including the data that TMCP1 thru/or 3 are slow motion.

[0072] In order to perform such the Normal playback and slow motion, the actuation which the stream-I/O equipment 21 shown in drawing 4 performs is explained with reference to the flow chart of drawing 6 . In step S1, it judges whether the playback mode the read-out section 11, a switch 12, and the mode information setting-out section 33 are instructed to be by the playback directions section 5 is the Normal playback.

[0073] When it is judged that it is the Normal playback, a switch 12 changes internal connection to Contact E side in step S2, and the read-out section 11 reads the transport stream of a current picture from the Records Department 10 in step S3. The transport stream in which reading appearance was carried out by the read-out section 11 is outputted to the 1394 packet-ized section 32 through the contact E side of a switch 12.

[0074] In step S4, the 1394 packet-ized section 32 packet-izes the inputted transport stream to an isochronous packet, and outputs it to stream decode equipment 22. Since it is the Normal playback in now, the value of the triplet (triplet after 1-bit TSF) of the beginning of the FDF field of the CIP header of 1394 packets is set as 110 (it mentions later for details), and all the remaining bits are set as 0.

[0075] On the other hand, when it is judged that the playback mode directed in the playback directions section 5 is not the Normal playback in step S1, it progresses to step S5. It is judged in step S5 whether they are directions of slow motion. When the decision result shows that slow motion was directed, it progresses to step S6. In step S6, a switch 12 switches internal connection to Contact F side. And in step S7, the read-out section 11 reads the transport stream currently recorded on the Records Department 10.

[0076] The mode information setting-out section 33 sets up the information for realizing slow motion in step S8. This information shows the thing of trick_mode_control_parameters (it is described as Following TMCP), and is written in the FDF field in the CIP header of 1394 packets. The syntax of trick modal control is shown below.

[0077]

<A table 5> No.of bits1 trick_mode_control_parameters(){2 trick_mode_control 33 if (trick_mode_control == fast_forward) {4 field_id 25 intra_slice_refresh 16 frequency_truncation 27 group_id 88 } 9 else if (trick_mode_control == slow_motion) {10 rep_cntrl 511 reserved812 } 13 else if (trick_mode_control == freeze_frame) {14 field_id 215 reserved 1116 }17 else if (trick_mode_control == fast_reverse) {18 field_id 219 intra_slice_refresh 120 frequency_truncation 221 group_id 822 } 23 else if (trick_mode_control == slow_reverse) {24 rep_control 525 group_id826 } 27else if (trick_mode_control == freeze_rep_info) {28 rep_control 529reserved(s) 830 } 31 else if (trick_mode_control == normal_playback) {32 reserved 1333 else34 reserved 1335 } [0078] The table 5 mentioned above is the syntax which extended a table 3. About the same syntax part as a table 3, the explanation is omitted and explanation of the extended part is given below. group_id of the 7th line, the 21st line, and the 25th line is the 8-bit field, and it is shown that the picture of the video stream to which the same group_id is applied is the group of the picture which can be decoded continuously. It is shown that reserved of the 10th line is secured for the future.

[0079] else if (trick_mode_control == freeze_rep_info) of the 27th line is the newly extended mode. When trick mode is set as this freeze_rep_info, the value of trick_mode_control of the 2nd line is "101." Moreover, this mode is the mode transmitted when a freeze mode is canceled, and the information on the display period of a video frame that the freeze mode was applied to rep_control of the 27th line is shown.

[0080] else if (trick_mode_control == normal_playback) of the 31st line is also the newly extended mode. When trick mode is set as this normal_playback, the value of trick_mode_control of the 2nd line is "110." This mode shows the case of the Normal playback, and the case where trick playback is canceled and it returns to the Normal playback.

[0081] Thus, trick_mode_control_parameters consists of a total of 16 bits using the information corresponding to the playback mode set up by the trick_mode_control field (the 2nd line) of a triplet, and this field which consists of 13 bits.

[0082] Return and the mode information setting-out section 33 set the value of the FDF field of the CIP header of 1394 packets as explanation of step S8 of drawing 6 at the value with which slow motion is realized. That is, as trick_mode_contorol_parameters, the value of trick_mode_control is set as "001", it is set as the value shown in the value of rep_cntrl by 5 bits which shows M times, and all of remaining 15 bits including reserved are set as 0. Thus, the value of the set-up FDF field is outputted to the 1394 packet-ized section 32.

[0083] The 1394 packet-ized section 32 packet-izes the transport stream outputted from the stream Banking Inspection Department 31 to 1394 packets in step S9. Under the present circumstances, packet-ization also including the information on the playback mode set up at step S8 (information on the FDF field) outputted from the mode information setting-out section 33 is performed. The outputted isochronous packet is outputted to stream decode equipment 22 through a path cord 2.
[0084] In step S10, if the picture of the packet outputted by step S9 puts only the display period currently displayed on the monitor 4 in another way, as for the read-out section 11, only the period corresponding to the count set up by rep_cntrl will stop read-out from the Records Department 10. It is judged in step S11 whether slow motion was canceled. When canceling slow motion, a user lifts a hand from the carbon button for directing slow motion, or does operating other carbon buttons etc. The read-out section 11, a switch 12, and the mode information setting-out section 33 judge whether such actuation was carried out.
[0085] In step S11, when it is judged that return and processing after it were repeated and it was canceled by step S7 when it was judged that slow motion is not canceled, it progresses to step S12. It is judged in step S12 whether directions of the Normal playback were carried out. When it is judged that they are directions of the Normal playback, it progresses to step S13.
[0086] In step S13, the mode information setting-out section 33 stops slow motion, and performs information setting out for returning to the Normal playback. This information setting out is performed by setting up the value of the FDF field of a CIP header, as step S8 explained. As for the FDF field, "110" is set up as a value of trick_mode_control (normal_playback), and the remaining bits are altogether set as 0 including the reserved field. Thus, if the information for returning to the Normal playback is set up, return and processing after it will be repeated by step S2. In addition, when it progresses to step S2 from step S13, in step S4, it is a form including the information on normal_playback set up at step S13, and packet-ization is performed.
[0087] On the other hand, when it is judged in step S12 that they are not directions of the Normal playback, it progresses to step S14 and it is judged whether they are directions of playback termination. When it is judged that they are not directions of playback termination, processing directed by progressing to step S15 is performed. For example, in directions of a rapid traverse, information to realize a rapid traverse is

set as the FDF field, is packet-ized by 1394 packets, and returns to step S1 after that.
[0088] In step S14, when it is judged that they are directions of playback termination, processing of this flow chart is ended.
[0089] Thus, without changing the content of the transport stream by which reading appearance was carried out by setting the information on trick mode as the FDF field which exists in the CIP header of 1394 packets, it becomes possible to transmit the information on trick mode, and it has and it becomes possible to simplify the configuration of stream-I/O equipment 21.
[0090] Next, the stream decode equipment 22 which decodes 1394 packets containing the packet of the transport stream outputted from this stream-I/O equipment 21 is explained. Drawing 7 is the block diagram showing the configuration of stream decode equipment 22.
[0091] 1394 packets outputted from stream-I/O equipment 21 are inputted into the 1394 depacketizing-ized section 41 of stream decode equipment 22. By depacketizing 1394 inputted packets, the 1394 depacketizing-ized section 41 outputs the FDF field (information on a playback mode) of a CIP header to the mode information decoder 43, and outputs a transport packet to a demultiplexer 42.
[0092] A demultiplexer 42 separates the pay load (PES packet) and PID of a transport packet which were inputted. When separated PID is directing the video stream, a demultiplexer 42 outputs a PES packet to the depacketizing-ized section 44. Moreover, when PID is directing Selection_Information_Table, a demultiplexer 42 separates the parameter of video_sequence_header_descriptor from a transport packet, and outputs the information to the video decoder 48. The depacketizing-ized section 44 separates a video stream from the inputted PES packet, and outputs it to the stream Banking Inspection Department 45.
[0093] The playback-mode information written in the FDF field of the CIP header outputted from the 1394 depacketizing-ized section 41 on the other hand is decoded in the mode information decoder 43. The information on the decoded playback mode is outputted to the trick mode controller 46. The trick mode controller 46 controls the stream Banking Inspection Department 45 and the video decoder 48 based on the inputted playback-mode information.
[0094] The stream Banking Inspection Department 45 inspects the inputted stream with the directions from the trick mode Banking Inspection Department 45. This inspection is the same inspection as the stream Banking Inspection Department 31 of stream-I/O equipment 21. that is, the inputted stream comes out so much, and when it cannot

decode, the stream Banking Inspection Department 45 discards the stream, and when it can decode, it outputs the stream to a buffer 47.
[0095] Since the stream Banking Inspection Department 31 of stream-I/O equipment 21 and the stream Banking Inspection Department 45 of stream decode equipment 22 perform same processing as mentioned above, they can also omit it with one of equipments. For example, when stream-I/O equipment 21 is not equipped with the stream Banking Inspection Department 31, the stream which cannot be decoded only by it may be inputted into the transport stream inputted into stream decode equipment 22. Since it is necessary to discard such a stream in stream decode equipment 22, the stream Banking Inspection Department 45 is formed. While memorizing sequence header and directing trick mode, it is made for the trick mode information setting-out section 33 of stream-I/O equipment 21 to always output this sequenceheader, when it does in this way.
[0096] On the contrary, since the stream which cannot be decoded is not inputted into stream decode equipment 22 when the stream Banking Inspection Department 31 is established in stream-I/O equipment 21, the stream Banking Inspection Department 45 of stream decode equipment 22 can omit. In such a case, the trick mode controller 46 will output the information on a playback mode only to the video decoder 48, and the direct input of the output from the depacketizing-ized section 44 will be carried out to a buffer 47.
[0097] Of course, any trouble cannot be found as a configuration which equips stream-I/O equipment 21 and stream decode equipment 22 with the stream Banking Inspection Department, respectively. Here, as shown in drawing 7 , it explains as stream decode equipment 22 equipped with the stream Banking Inspection Department 45.
[0098] It is outputted from the stream Banking Inspection Department 45, and the stream inputted into the buffer 47 is once memorized. When playback (fast_reverse or slow_reverse) of hard flow is mainly directed, since a video stream with the same group_id is buffered, this buffer 47 has been formed. Therefore, the magnitude of this buffer 47 is set as a larger capacity than the maximum number of bits of 1GOP (Group_of_Pictures).
[0099] The video stream outputted from the buffer 47 is inputted into the video decoder 48. The data outputted from the demultiplexer 42 are suitably inputted into the video decoder 48 besides the video stream from a buffer 47, and the information on a playback mode is also suitably inputted into it from the trick mode controller 46. The video decoder 48 decodes a video stream using such inputted information, and outputs it

to a monitor 4.
[0100] Next, with reference to the flow chart of drawing 8 , actuation of stream decode equipment 22 when slow motion is directed as trick mode is explained. In step S21, the 1394 depacketizing-ized section 41 receives 1394 packets. In step S22, the 1394 depacketizing-ized section 41 reads the information on the playback mode described by the FDF field of the received CIP header of 1394 packets.
[0101] The information on the playback mode by which reading appearance was carried out is outputted to the mode information decoder 43, is decoded and is outputted to the trick mode controller 46. And in step S23, it judges whether the information on a playback mode that the trick mode controller 46 was inputted is directing the Normal playback as a playback mode. When it is judged that the Normal playback is directed, it progresses to step S24.
[0102] Processing of the Normal playback is carried out in step S24. That is, as a result of depacketizing in the 1394 depacketizing-ized section 41 first, a transport packet is outputted to a demultiplexer 42. From the inputted transport packet, a demultiplexer 42 separates a pay load (PES packet), and outputs it to the depacketizing-ized section 44. The depacketizing-ized section 44 depacketizing-izes the inputted method video packet of a PES packet, and outputs it to the stream Banking Inspection Department 45.
[0103] The stream Banking Inspection Department 45 outputs the inputted video packet to the video decoder 48 through a buffer 47 as it is corresponding to the signal from the trick mode controller 46. The video decoder 48 decodes the inputted video packet corresponding to the signal from the trick mode controller 46 as usual, and outputs it to a monitor 4.
[0104] Thus, if processing of the Normal playback is performed, return and processing after it will be repeated by step S21.
[0105] On the other hand, when it is judged in step S23 that they are not directions of the Normal playback, it progresses to step S25 and it is judged whether they are directions of slow motion. When it is judged that they are directions of slow motion, it progresses to step S26. In step S26, the trick mode controller 46 controls the stream Banking Inspection Department 45 and the video decoder 48 corresponding to the information which shows the slow motion inputted through the mode information decoder 43.
[0106] The stream Banking Inspection Department 45 understands that slow motion is applied to the stream outputted from the depacketizing-ized section 44 based on the control from the trick mode controller 46.

And since the stream in which a sign is impossible may be inputted as it being an output from the stream-I/O equipment 21 with which it does not have the stream Banking Inspection Department 31 as mentioned above in playback in trick modes, such as slow motion, when such a stream is inputted, the inputted stream is inspected so that the stream may be discarded.

[0107] In step S27, if you understand that slow motion is applied, the video decoder 48 will decode the PES packet outputted from the buffer 47 based on the control from the trick mode controller 46 so that the picture by the PES packet may be indicated by multiple times. That is, by rep_cntrl currently written in the FDF field of 1394 packets received in the 1394 depacketizing-ized section 41, decoding is performed only for the directed count so that the picture of the packet may be displayed.

[0108] Thus, if processing of step S27 is ended, the same processing will be repeated by step S21 about return and the following packet.

[0109] On the other hand, when it is judged in step S25 that they are not directions of slow motion, it progresses to step S28 and processing of the playback mode which playback-mode information directs is performed. And if this processing is ended, return and processing after it will be repeated by step S21.

[0110] Processing of this flow chart is ended by interruption processing, when the output from stream-I/O equipment 21 is completed.

[0111] Drawing 9 is the block diagram showing the configuration of other stream-I/O equipments 21. In this configuration, the stream outputted from the stream Banking Inspection Department 31 is made as [output / through a switch 51]. Moreover, the information outputted from the mode information setting-out section 33 is made as [output / to a switch 51 / through the packet-ized section 52]. Since other configurations are the same configurations as the stream-I/O equipment 21 of drawing 4 , the explanation is omitted.

[0112] Next, actuation of stream-I/O equipment 21 is explained with reference to the flow chart of drawing 10 . In step S31, it is judged for directions whether it is the Normal playback. This judgment is made like the method of decision which step S1 of drawing 6 explained by the way. And in step S31, when it is judged that it is the Normal playback, it progresses to step S32. In step S32, a switch 12 changes internal connection to Contact E side, and a switch 31 changes internal connection to Contact A side.

[0113] After the change of a switch 12 and a switch 31 is ended, it progresses to step S33, and the read-out section 11 reads the

transformer stream currently recorded on the Records Department 10, and outputs it to stream decode equipment 22 through the contact E of a switch 12, and the contact A of a switch 51.
[0114] On the other hand, when directions are judged not to be the Normal playback in step S31, it progresses to step S34 and it is judged whether it is slow motion playback. When directions are judged to be slow motion playback, it progresses to step S35. In step S35, a switch 12 changes internal connection to Contact F side, and a switch 51 changes internal connection to Contact B side. And the change of a switch 12 and a switch 51 progresses to step S36, after being ended, respectively.
[0115] In step S36, information setting out of slow motion playback is performed. In step S37, the information set up is outputted to the packet-ized section 52, and is packet-ized by the transport packet. And the information on the packet-ized slow motion playback is outputted to stream decode equipment 22 through the contact B of a switch 51 in the packet-ized section 52.
[0116] Here, the information set up in step S36 and packet-ization performed in step S37 are explained. The information on the slow motion playback performed at step S36 is trick_mode_control and rep_ctrl as trick_mode_control_parameters() like step S8 of drawing 6 . In the stream-I/O equipment 21 shown in drawing 9 , a new transport packet is generated only for the set-up information. Therefore, private_section() defined by ISO/IEC 13818-1 is used.
[0117] trick_mode_information_table (it is hereafter described as TMIT) is a table which describes the information on playback in trick mode, and consists of one trick_mode_information_section. This section (section) is syntax structure in case section_syntax_indicator of private_section() defined by ISO/IEC 13818-1 is "0." The syntax of trick_mode_information_section is shown below.
<A table 6> No.of bits1 trick_mode_information_section()[2 table_id 83 section_syntax_indicator 14 reserved_1 15 reserved_2 26 section_length 127 trick_mode_control_parameters() 168 }
[0118] table_id of the 2nd line must be the 8-bit field, and must be an intact value by ISO/IEC 13818-1 and DVD specification. This table_id is the field for identifying the private table on which this section belongs. section_syntax_indicator of the 3rd line is the 1-bit field, and the value is set as "0." When this value is set as "0", it is shown that private_data_byte continues just behind the private_section_length field. private_data_byte is the field which a user can define, and trick_mode_control_parameters() is defined when it is now.

[0119] reserved of the 4th line and the 5th line is the field secured for the future. section_length of the 6th line is the 12-bit field, and shows the remaining byte count of this private section from after this field. And in now, as mentioned above, 16-bit trick_mode_control_parameters() is defined as the field which can be defined by the user.
[0120] Thus, since trick_mode_information_section defined is a 40-bit fixed length, it can be transmitted by one transport packet. The syntax when forming this trick_mode_information_section into a transport packet is shown below.
[0121]
<A table 7> No.of bits1
transport_packet_for_Trick_mode_Information_Table(){2 sync_byte 83
transport_error_indicatator 14 payload_unit_start_indicator 15
transport_priority 16 PID 137 transport_scrambling_control28
adaptation_field_control 29 continuity_counter 410 pointer_field 811
trick_mode_information_section() 4012 stuffing_bytes 178 (byte) 13 }
[0122] Although a table 7 rewrites a table 1 so that this invention may be suited, and detailed explanation is omitted since it is the same as that of a case [in / in the 2nd line thru/or the 9th line / a table 1] Here the value of sync_byte of the 2nd line It is set up with "0100 0111" (0X47). The value of transport_error_indicator of the 3rd line It is set up with "0", the value of payload_unit_start_indicator of the 4th line is set up with "1", and the value of transport_priority of the 5th line is set up with "0."
[0123] Since an intact value should just be set up by ISO/IEC 13818-1 and DVB specification, PID of the 6th line is set up with "0X001D", for example. The value of transport_scrambling_control of the 7th line is set as "00", and the value of adaptation_field_control of the 8th line does not have the Adaptation field, and is set as "01" which shows only a pay load. And the value of continuity_counter of the 9th line is set as "0000."
[0124] trick_mode_information_section() of the 11th line shows from what byte after this pointer_field it is started, and when pointer_field of the 10th line is set as "0000 0000", it shows that it is started from immediately after. The information on the trick mode which consists of 40 bits explained to trick_mode_information_section() of the 11th line with a table 6 is inserted. And all the values of stuffing_bytes of the 12th line are set as "1."
[0125] The transport stream packet generated by explanation of the flow chart of drawing 10 in return, step S36, and step S37 using trick_mode_information_section and

transport_packet_for_Trick_mode_Information_Table which were mentioned above is outputted to stream decode equipment 22 through the contact B of a switch 51.

[0126] In step S37, the read-out section 11 reads the transport packet to which slow motion playback is applied from the storage section 10. Slow motion playback is applied to the transport stream for one picture outputted after a transport stream packet including the information on the slow motion playback mentioned above, and only a part to have been directed by rep_ctrl is repeatedly displayed on it in a monitor 4. Thus, reading appearance of the transport stream of the picture displayed is carried out from the Records Department 10.

[0127] In step S37, in case the read-out section 11 reads a transport stream from the Records Department 10, a switch 12 is changed to Contact F side. Therefore, the transport stream outputted from the read-out section 11 will be outputted to a switch 51 through the stream Banking Inspection Department 31. Since the transport stream outputted from the stream Banking Inspection Department 31 is outputted to stream decode equipment 22, a switch 51 switches internal connection to Contact A side.

[0128] Thus, if a transport stream is outputted, in step S39, as for the read-out section 11, only the period when the picture of the outputted transport stream is displayed will stop read-out from the Records Department 10. Since processing of this step S39 thru/or step S44 is the same processing as processing of step S11 of drawing 6 thru/or step S15, that explanation is omitted. However, if information setting out for returning to the Normal playback at step S42 is ended, a transport stream packet will be formed in step S45, and if the packet is outputted, it will progress to step S32.

[0129] Thus, since a new transport packet including the information for realizing the trick mode is generated and it was made to output when trick mode was directed, it becomes possible to simplify the configuration of stream-I/O equipment 21.

[0130] Drawing 11 is the block diagram showing the configuration of the stream decode equipment 22 which decodes the transport stream outputted from the stream-I/O equipment 21 of drawing 9 . In this configuration, the stream outputted from stream-I/O equipment 21 is made as [input / into a demultiplexer 42]. Moreover, the output from a demultiplexer 42 is made through the switch 61 as [input / into the depacketizing-ized section 44 or the mode information decoder 43]. Since other configurations are the same configurations as the stream decode equipment 22 shown by drawing 7 , the explanation is omitted.

[0131] Actuation of the stream decode equipment 22 shown in drawing 11 is explained with reference to the flow chart of drawing 12 . In step S51, a demultiplexer 42 receives the transport stream packet outputted from stream-I/O equipment 21. A demultiplexer 42 separates a pay load (PES packet) and PID from the inputted transport stream packet. And in step S52, a switch 61 judges whether separated PID is directing the video stream or trick mode information and sequence header are directed.
[0132] In step S52, when it is judged that PID is directing the video stream, it progresses to step S53 and the internal connection of a switch 61 is changed to Contact C side. By changing a switch 61 to Contact C side, the video stream (PES packet) separated by the demultiplexer 42 is outputted to the depacketizing-ized section 44.
[0133] Regeneration is performed in step S54. Namely, from the inputted PES packet, the depacketizing-ized section 44 separates a video stream and outputs it to the stream Banking Inspection Department 45. The stream Banking Inspection Department 45 outputs to the video decoder 48 through a buffer 47, after processing the inputted video stream based on the information from the trick mode controller 46.
[0134] The video decoder 48 decodes the inputted video stream, and outputs it to a monitor 4. Thus, if processing of the Normal playback is ended to the transport packet inputted into stream decode equipment 22, return and processing after it will be repeated by step S51.
[0135] On the other hand, when it is judged in step S52 that PID is not directing the video stream, it progresses to step S55 and the internal connection of a switch 61 is changed to Contact D side. By changing the internal connection of a switch 61 to Contact D side, the pay load of the transport stream packet inputted into the demultiplexer 42 is inputted into the mode information decoder 43.
[0136] Thus, when a switch 61 is changed to Contact D side and data are inputted into the mode information decoder 43, the data is the data which direct trick mode, the data which carries out the directions which return from trick mode to the Normal playback, or sequence header. The pay load inputted into the mode information decoder 43 is decoded there, and data which were mentioned above are taken out. The taken-out information is outputted to the trick mode controller 46.
[0137] The trick mode controller 46 controls the stream Banking Inspection Department 45 and the video decoder 48 in step S56 based on the inputted information. And return and the following transport stream are received to step S51. And in step S52, although it is judged whether PID of the transport stream which received is directing the

video stream, since the video stream to which the trick mode is applied is inputted after the information on trick mode is inputted, it progresses to step S53.
[0138] In step S53, a switch 61 changes the internal connection to Contact C side, and regeneration is performed in step S54 according to the directed playback mode. That is, when a video stream is extracted by the depacketizing-ized section 44, it is judged whether it is the stream which the video stream can decode only by it and it is judged [that it can decode and], it is outputted to a buffer 47, and the inputted stream is discarded when judged [that it cannot decode and].
[0139] It is inputted into a buffer 47, and if needed, reading appearance of the memorized stream is carried out by the video decoder 48, and it is decoded. In case the video decoder 48 decodes the inputted stream, it is decoded according to the information on the trick mode outputted from the trick mode controller 46. That is, according to the directions, since the data of rep_cntrl are inputted when slow motion is directed as trick mode, decoding is performed so that the same picture may be ** (ed) the first half of the Mth inning.
[0140] Thus, after regeneration by step S54 is ended, return and processing after it are repeated by step S51. And trick mode playback is continued until it receives the transport stream packet containing the data about trick mode discharge. And when the transport stream which receives is lost, processing of this flow chart is ended.
[0141] In the gestalt of operation mentioned above, as trick mode, although slow motion was explained as an example, this invention is not applicable to other trick modes until it says.
[0142] In addition, the transmission medium by networks, such as the Internet besides information record media, such as a magnetic disk and CD-ROM, and a digital satellite, is also contained in the offer medium which provides a user with the computer program which performs the above-mentioned processing in this description.
[0143]
[Effect of the Invention] According to [like / the above] the image data source according to claim 1, the image data source according to claim 4, and the offer medium according to claim 5, the information on a playback mode is set up, and the information on a playback mode can be transmitted, without changing the in-house data of the supplied image data, since it relates with the image data to which the set-up information was supplied and was made to output.
[0144] The information on a playback mode can be acquired without changing the in-house data of the image data received, since it was

made to regenerate according to the data which extracted predetermined data and were extracted from the received packet according to the image data sink according to claim 6, the image data receiving approach according to claim 9, and the offer medium according to claim 10.

[Translation done.]